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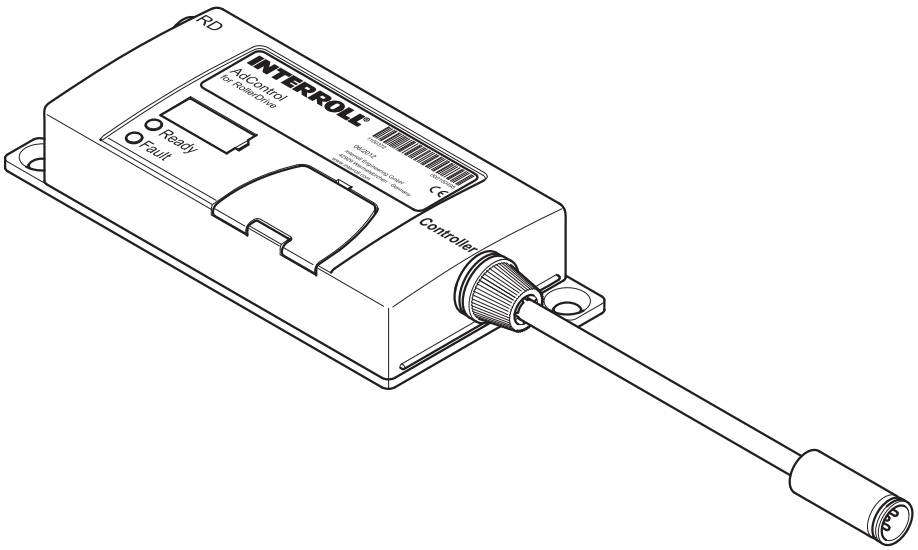

User manual
Interroll AdControl

Version 1.0 (07/2012) en
Translation of the original instructions

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Introduction

Information about the operating instructions

Contents

This manual contains important advice, notes and information about the AdControl in all phases of its lifecycle:
- Transport, assembly and start-up
- Safe operation, maintenance and troubleshooting, disposal
- Accessories

Validity of the manual

The manual describes the AdControl as it is delivered by Interroll.

In addition to this manual, special contractual agreements and technical documents apply to special versions.

The manual is part of the product

- ➢ For trouble-free, safe operation and warranty claims, read the manual and follow the instructions before handling the AdControl.
- ➢ Keep the manual near to the AdControl.
- ➢ Pass the manual on to any subsequent operator or occupant of the AdControl.
- ➢ Interroll does not accept any liability for malfunctions or defects due to non-observance of this manual.
- ➢ If you have any questions after reading the operation manual, feel free to contact our customer service. See the last page for your local contact.

Warnings in this manual

The warnings in this document refer to risks which may arise while using the AdControl. For relevant warnings, *see "Safety", page 4* and the warnings at the beginning of each chapter.

There are three categories of danger. The following signal words are used in the document as required:
- Danger
- Warning
- Caution

Signal word	Meaning
Danger	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
Warning	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
Caution	Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

Structure of warnings

⚠ DANGER

Nature and source of the hazard
Possible consequence of non-observance

- ➢ Information about how to avoid the hazard.

Further symbols

NOTICE

This symbol identifies possible material damage.
➢ Information about how to avoid damage.

This symbol displays safety instructions.

This symbol marks useful and important information.

➢ This symbol marks the steps that have to be carried out.

Safety

General safety instructions

The AdControl is designed according to the technical state of the art and is reliable in operation, once distributed. However, risks may still arise.

- Risks of physical injury to the user or bystanders.
- Adverse effects of the AdControl and other material.

⚠ Disregarding the warnings in this manual may lead to serious injury.

- ➢ Always read the entire operating and safety instructions before starting to work with the AdControl and follow the information contained herein in full.
- ➢ Only instructed and qualified persons may work with the AdControl.
- ➢ Always keep this user manual at hand when working on the AdControl so that you can consult it quickly if required.
- ➢ Always comply with relevant national safety regulations.
- ➢ If you have any questions after reading this user manual, feel free to contact our customer service. See the last page for contact information.

Intended use

The AdControl may only be used for industrial applications and in an industrial environment to control a RollerDrive EC310. It must be integrated into a conveyor module or conveyor system. Any other use is considered inappropriate.

Any modifications that affect the safety of the product are not permitted.

The AdControl may only be operated within the defined operating limits.

Unintended use

Applications not according to the intended use of the AdControl require approval from Interroll.

Qualified persons

Qualified persons are persons who read and understand the manual and, taking national regulations into account, can competently execute incidental work.

Only instructed and qualified persons may work with the AdControl, taking the following into account:

- the relevant manuals and diagrams,
- the warning and safety instructions in this manual,
- the system specific regulations and requirements,
- national or local regulations and requirements for safety and accident prevention.

Dangers

The following list provides information about the various types of danger or damage that may occur while working with the AdControl.

Bodily injury

- Maintenance or repair work must only be performed by authorized and qualified persons in accordance with the applicable regulations.
- Before using the AdControl, ensure that no unauthorized persons are near the conveyor.

Electricity

- Only perform installation and maintenance work after you have switched off the power.
- Ensure that the power cannot be turned on accidentally.

Working environment

- Do not use the AdControl in areas where there is a hazard of explosion.
- Remove equipment or material which is not required from the workspace.

Faults during operation

- Regularly inspect the AdControl for visible damage.
- If you notice smoke, switch off the power immediately and ensure that it cannot be switched on again accidentally.
- Contact qualified personnel immediately to find the source of the fault.

Maintenance

- Because the product does not require maintenance, you only need to inspect the AdControl regularly for visible damage and that all cables and screws are firmly in place.

Interfaces to other devices

By assembling the AdControl in a conveyor module, further hazards may occur. These hazards are not part of this manual and have to be analyzed during the design, installation and startup of the conveyor module.

- After assembling the AdControl in a conveyor module, check the whole system for a new potential dangerous spot before switching on the conveyor.

Operating modes

Normal mode

Operation of the installed device at the end customer's as a component in a conveyor in a complete system.

Special mode

All operating modes which are required to guarantee and maintain safe and normal operation.

Special operating mode	Explanation	Comment
Transport/Storage	Loading and unloading, transport and storage	-
Assembly/Initial start-up	Installation at the end customer's and performing the test run	When de-energized
Cleaning	External cleaning	When de-energized
Maintenance/Repairs	Maintenance and inspection tasks	When de-energized
Troubleshooting	Troubleshooting in the event of a fault	When de-energized
Fault elimination	Eliminating the fault	When de-energized
Shut-down	Dismantling from the conveyor	When de-energized
Disposal	Disposal of AdControl and packaging	-

Product information

Product description

The AdControl serves as an interface modification between a DriveControl 200/ DriveControl 300 and a RollerDrive EC310. If the RollerDrive EC300 of a conveyor is replaced with a RollerDrive EC310, but the DriveControl 200/300 is to remain, the AdControl ensures that the signals (speed and direction of rotation) of a DriveControl 200/300 are converted in such a way that a RollerDrive EC310 can be connected that behaves in exactly the same way as a RollerDrive EC300. The AdControl can also be used if the RollerDrive EC300 has been actuated without DriveControl.

Functions

- **Regenerative braking**: When the RollerDrive motor brakes, it acts as a generator and feeds energy back into the power supply. The AdControl has a built in brake chopper (load resistor) to limit the DC voltage on the connection to a stable level.
- **Diagnostics**: LEDs indicate the operating condition of the AdControl and the RollerDrive as well as the operating voltage (*see "Meaning of the LEDs", page 10*). An error signal can also be output.
- **Speed conversion**: Because the RollerDrive EC310 has other gear phases just like the RollerDrive EC300, the RollerDrive EC310 would rotate at a different speed when actuated in the same way. The AdControl converts the speed signal of the DriveControl 200/300 in such a way that the RollerDrive EC310 rotates at the same speed as a previously used RollerDrive EC300.

Energy feedback

When the speed of a rotating RollerDrive is abruptly reduced (e. g. by removing or reducing the start signal at the DriveControl), the RollerDrive continues to rotate briefly (depending on the weight of the conveyed goods being stopped) and thus functions as a generator. The voltage generated in this way increases the supply voltage of the RollerDrive. This increased voltage is partly fed to the DC supply (to max. 30 V) and partly converted to heat via a brake chopper resistance on the DriveControl. The regenerated power is then available for other consumers. The more precisely 24 V are complied to in the voltage supply the greater the voltage range in which the DC network can be fed back to.

Temperature protection

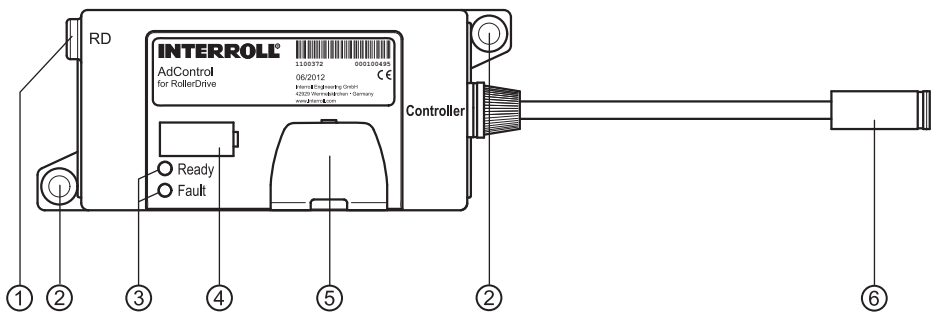
The brake chopper resistor is temperature-controlled. If, due to specific application properties (e. g. high conveying weight or high conveying speed), the brake chopper resistance is frequently switched, the DriveControl switches off when it becomes too hot (approx. 90 °C inner temperature). If temperature protection is activated, this state is indicated by the LEDs and no start signal will be transmitted to the RollerDrive. When the DriveControl has cooled down, the RollerDrive restarts automatically when a signal is pending. The DriveControl cools down quicker if it is mounted on a flat surface, ideally metal.

NOTICE

DriveControl failure from overheating

➢ Do not perform a voltage reset when temperature protection is active.

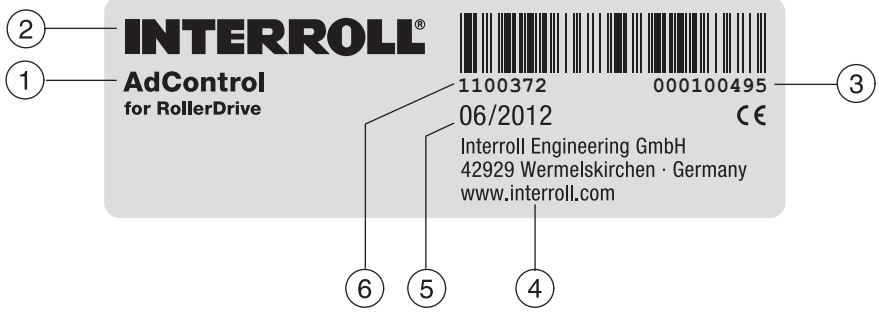
Components



① RollerDrive connector
② Mounting link with hole for countersunk screw
③ LEDReady and Fault
④ Marker (changeable)
⑤ Cover for DIP switches
⑥ Controller connection

Type plate

The information on the type plate is used to identify the AdControl.

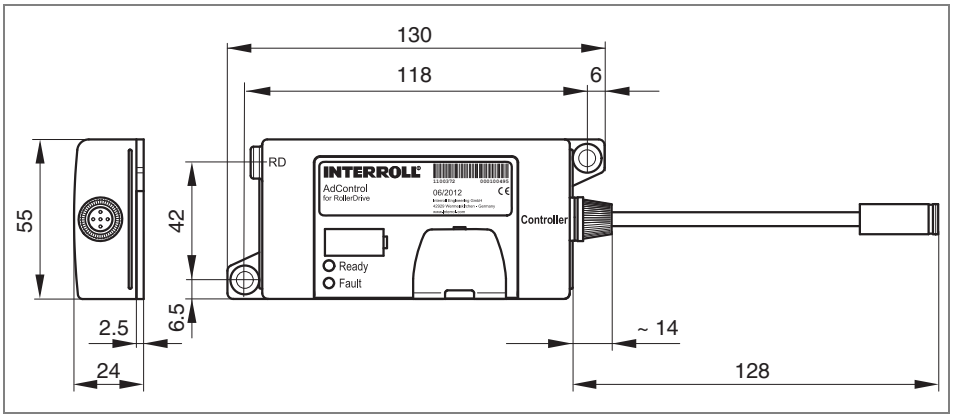


① Product name
② Manufacturer
③ Serial number
④ Manufacturer's address
⑤ Week and year of production
⑥ Article number

Technical data

Rated voltage	24 V DC
Voltage range	19 to 26 V DC (max. reverse polarity protection 30 V)
Current consumption	with RollerDrive: up to 5 A without RollerDrive: 0.5 A
Protection classification	IP20
Cooling	Convection
Permissible ambient temperature in operation	0 °C to 40 °C (32 °F to 104 °F)
Permissible ambient humidity	5 to 95 %, condensation not permissible
Installation height above sea level	max. 1000 m (max. 3300 ft)

Dimensions



DIP switches

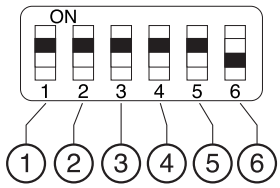
The DIP switches are used to select the gear ratio of the previously used RollerDrive EC300 and RollerDrive EC310 to be used in the future. Based on these values, the AdControl determines the necessary change that has to be made to the speed signal.

In its as-delivered state, the gear ratio EC300 13:1 and EC310 16:1 are set.

DIP switches	Meaning
7.85:1/13:1	Gear ratio of theRollerDrive EC300
Bit 0, Bit 1, Bit 2, Bit 3	Gear ratio of the RollerDrive EC310 (see below)
Reserve	not occupied

Gear ratio RollerDrive EC310	DIP switches			
	Bit 3	Bit 2	Bit 1	Bit 0
9:1	OFF	OFF	OFF	OFF
12:1	OFF	OFF	OFF	ON
16:1	OFF	OFF	ON	OFF
20:1	OFF	OFF	ON	ON
24:1	OFF	ON	OFF	OFF
36:1	OFF	ON	OFF	ON
48:1	OFF	ON	ON	OFF
64:1	OFF	ON	ON	ON
96:1	ON	OFF	OFF	OFF

If a different DIP switch combination is set than the one listed in the table, the RollerDrive speed of rotation will be set to 0 RPM.



DIP switches

① Bit 3
② Bit 2
③ Bit 1
④ Bit 0
⑤ 7.85:1/13:1
⑥ Reserve

Meaning of the LEDs

The LEDs indicate the operating state of the AdControl and the RollerDrive and provide information about the operating voltage.

LED green	Meaning	Operating voltage
on steady	AdControl ready for operation	19 to 26 V
flashing	RollerDrive rotating/is activated	19 to 26 V
off	AdControl not ready for operation	

LED red	Meaning	Operating voltage
on steady	fuse in AdControl defective	
flashing slowly [1]	• Operating voltage too low or too high • RollerDrive Error • RollerDrive faulty or not connected	below 18 V or over 26 V
flashing quickly [2]	Shutdown due to excessive temperature in chopper resistance	

[1] LED flashing slowly = 0.5 s on - 1.5 s off

[2] LED flashing quickly = 0.5 s on - 0.5 s off

Comparison RollerDrive EC310 and EC300

Replacing a RollerDrive EC300 with a RollerDrive EC310 changes the torque and maximum speed.

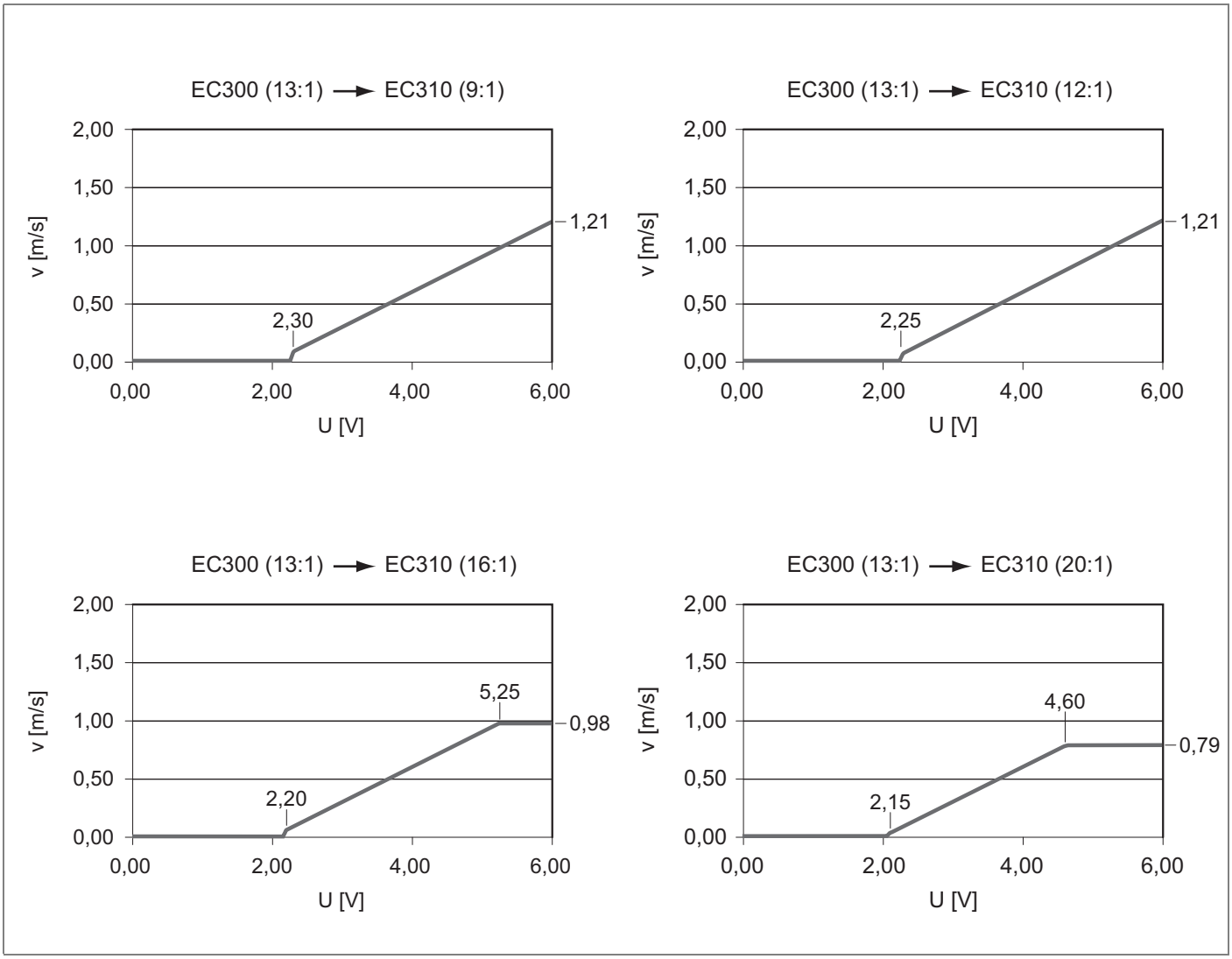
Gear ratio		DIP switches					Nominal torque [Nm]		Max. torque [Nm]		Max. speed [m/s]	
EC300	EC310	Bit 3	Bit 2	Bit 1	Bit 0	7.85:1/ 13:1	EC300	EC310	EC300	EC310	EC300	EC310
13:1	12:1	OFF	OFF	OFF	ON	ON	0.90	0.61	1.60	1.46	1.27	1.31
13:1	16:1	OFF	OFF	ON	OFF	ON	0.90	0.81	1.60	1.95	1.27	0.98
13:1	20:1	OFF	OFF	ON	ON	ON	0.90	1.01	1.60	2.44	1.27	0.78
7.85:1	9:1	OFF	OFF	OFF	OFF	OFF	0.70	0.45	1.00	1.10	2.00	1.75
7.85:1	12:1	OFF	OFF	OFF	ON	OFF	0.70	0.61	1.00	1.46	2.00	1.31
7.85:1	16:1	OFF	OFF	ON	OFF	OFF	0.70	0.81	1.00	1.95	2.00	0.98

The following graphs show the conveyor speed as a function of the voltage and of the gear stages.

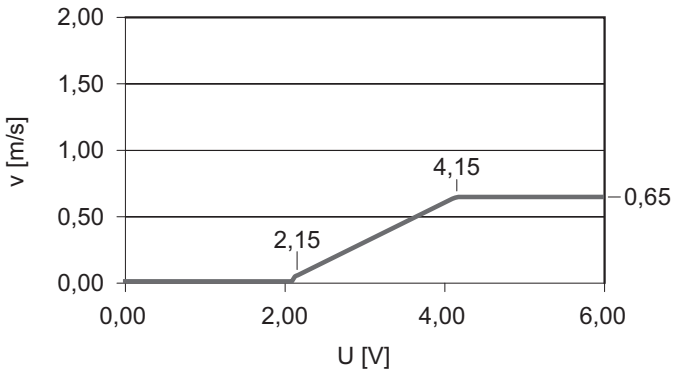
Abbreviations:

v [m/s]	Conveyor speed in m/s
U [V]	Speed control in volts

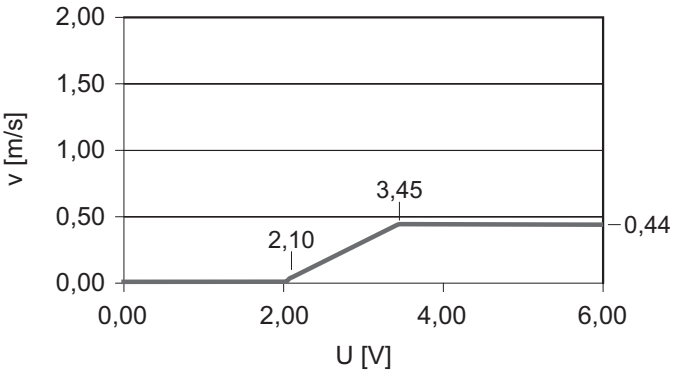
EC300 13:1



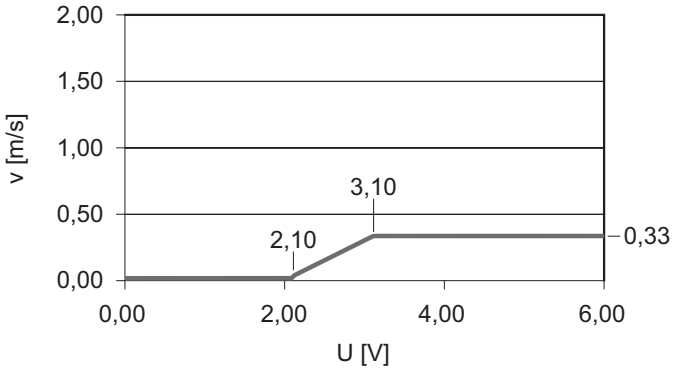
EC300 (13:1) → EC310 (24:1)



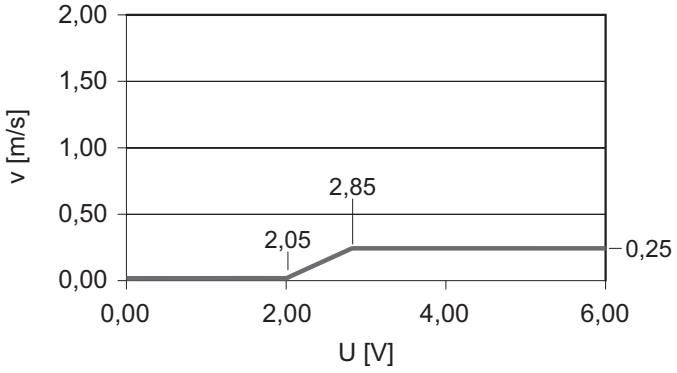
EC300 (13:1) → EC310 (36:1)



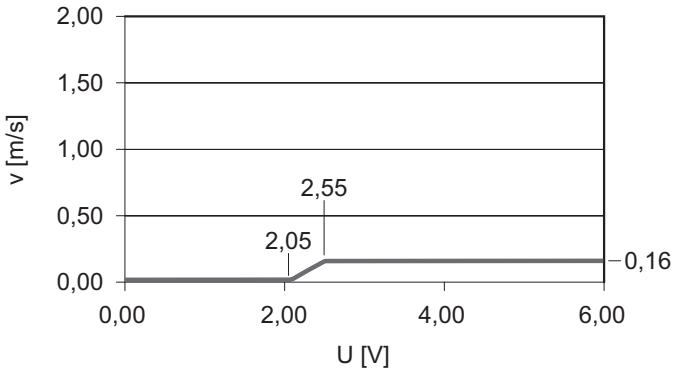
EC300 (13:1) → EC310 (48:1)



EC300 (13:1) → EC310 (64:1)

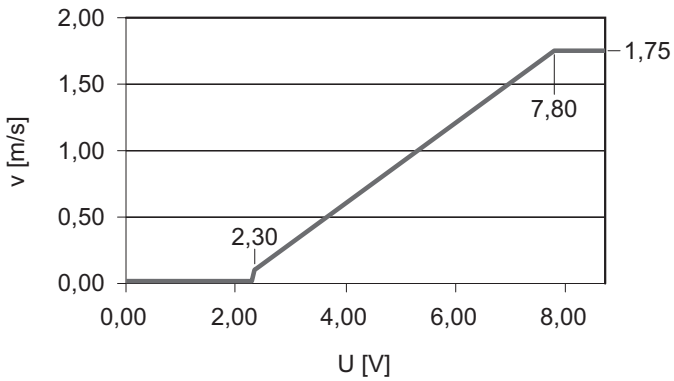


EC300 (13:1) → EC310 (96:1)

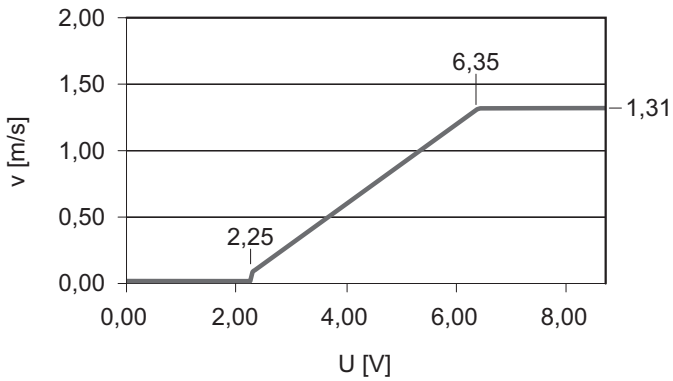


EC300 7.85:1

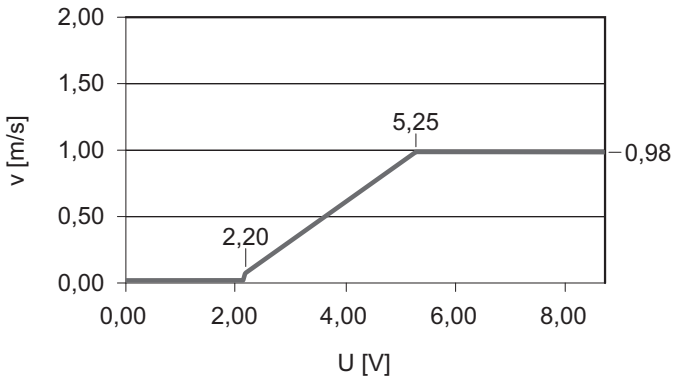
EC300 (7,85:1) → EC310 (9:1)



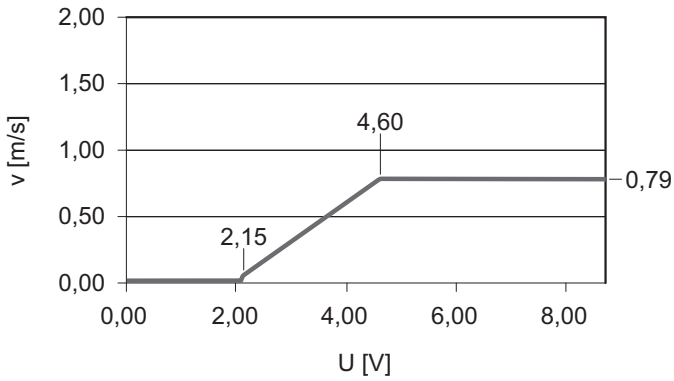
EC300 (7,85:1) → EC310 (12:1)



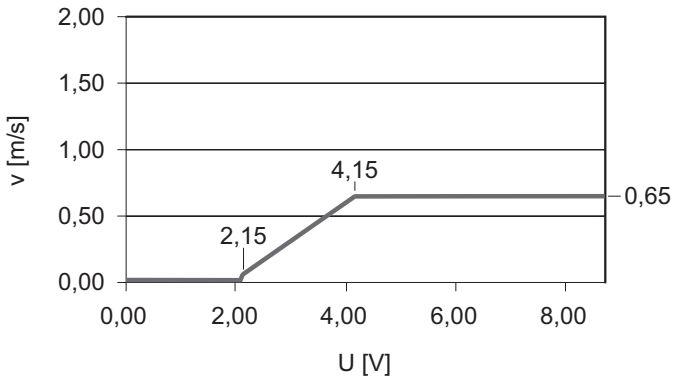
EC300 (7,85:1) → EC310 (16:1)



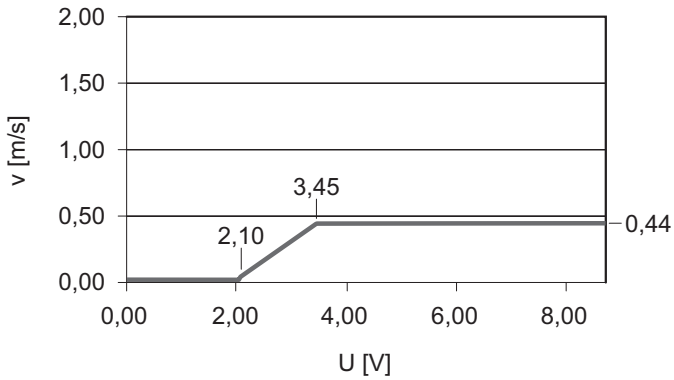
EC300 (7,85:1) → EC310 (20:1)

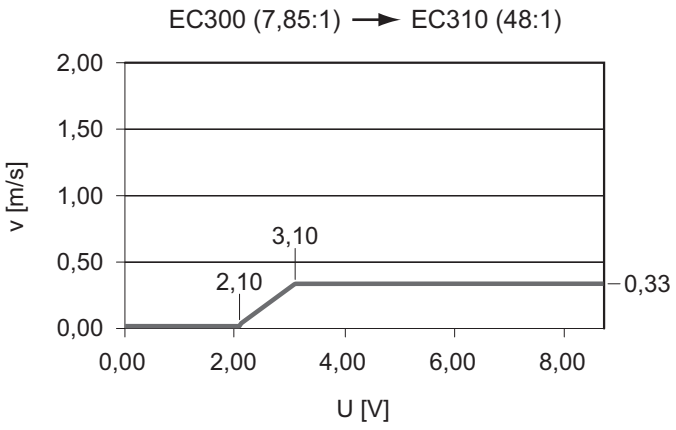


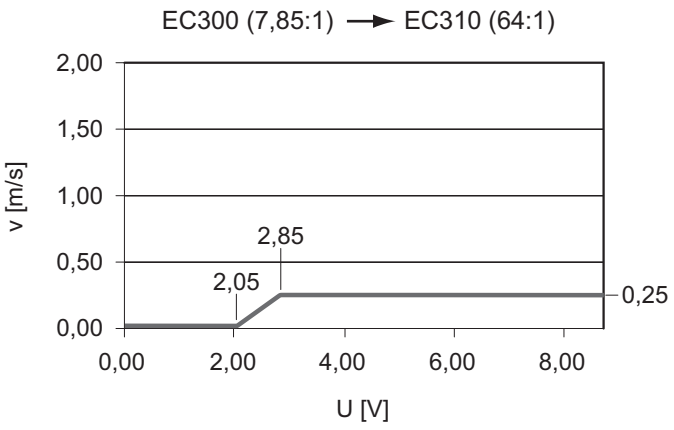
EC300 (7,85:1) → EC310 (24:1)

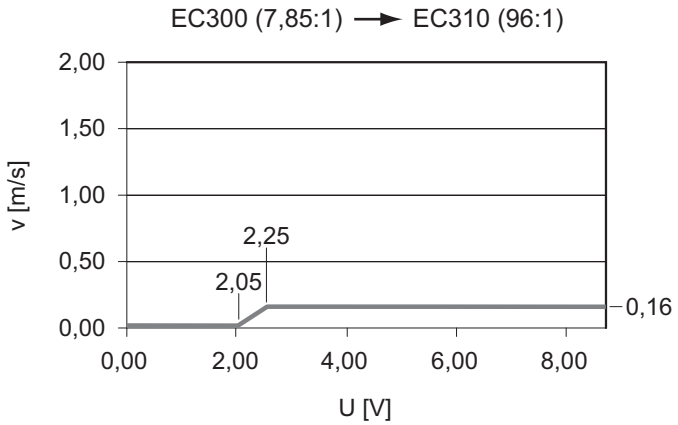


EC300 (7,85:1) → EC310 (36:1)




EC300 (7,85:1) → EC310 (48:1)
v [m/s]
2,00
1,50
1,00
0,50
0,00
3,10
2,10
0,33
0,00
2,00
4,00
6,00
8,00
U [V]


EC300 (7,85:1) → EC310 (64:1)
v [m/s]
2,00
1,50
1,00
0,50
0,00
2,85
2,05
0,25
0,00
2,00
4,00
6,00
8,00
U [V]


EC300 (7,85:1) → EC310 (96:1)
v [m/s]
2,00
1,50
1,00
0,50
0,00
2,25
2,05
0,16
0,00
2,00
4,00
6,00
8,00
U [V]

Transport and storage

Ambient conditions for transport and storage

Permissible ambient temperature	-40 °C to 85 °C (-40 °F to 185 °F)
Permissible relative humidity	5 to 95 % Condensation not permissible.

Transport

- Every AdControl is packaged in its own cardboard box.

NOTICE

There is a risk of damage to property if transported incorrectly.

- ➢ Only qualified and authorized persons should transport the product.
- ➢ Follow the instructions below.

- ➢ Do not stack more than four cardboard boxes on top of each other.
- ➢ Check that the boxes are correctly fixed in place prior to transport.
- ➢ Avoid serious impacts during transport.
- ➢ Check every AdControl for visible damage after transport.
- ➢ In the event of damage, take photos of the damaged parts.
- ➢ To maintain the warranty, report any damage caused by transport instantly to the transport company and Interroll.
- ➢ Do not expose the AdControls to serious temperature fluctuations as this could result in condensation.

Storage

- ➢ Check each AdControl for damage after storage.

Assembly

Warning notices concerning assembly

NOTICE

Risk of damage leading to failure or shortened life expectancy of the DriveControl

➢ Follow the instructions below.

- ➢ Do not drop or mishandle the AdControl to avoid internal damage.
- ➢ Check each AdControl visually for damage before assembly.

Warning information relating to the electrical installation

NOTICE

Risk of damage to the AdControl

➢ Observe the following safety information.

- ➢ All electrical work should only be performed by qualified and authorized persons.
- ➢ Disconnect the system from power supply before installing, removing or rewiring the AdControl.
- ➢ Ensure that both during operation and in case of errors no hazardous voltage can access the connections or the housing.
- ➢ Do not connect AC current to the RollerDrive or the AdControl at any time, as this will cause irreparable damage to the device.
- ➢ Do not apply too much tension or load to the motor connector. Bending the cables at the connector can cause damage to the cable insulation, which could result in failure of the AdControl or the RollerDrive.
- ➢ Only use cables that are dimensioned sufficiently for the application.
- ➢ Ensure that the switching power supply unit supplying the DriveControl supplies a nominal DC voltage of 24 V with a maximum deviation of ±8 %.
- ➢ Ensure that the RollerDrive, the AdControl and the voltage source are connected to the conveyor frame or supporting structure in such a way that they are properly earthed. Incorrect earthing can result in the build-up of static charge, causing the motor or AdControl to malfunction or fail prematurely.
- ➢ Only apply operating voltage when all of the cables have been connected.

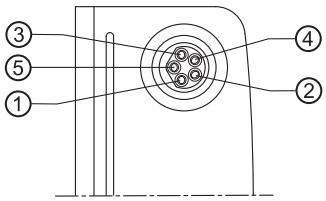
Installing the AdControl in a conveyor system

- Locate a flat surface for mounting the AdControl.
- Use the AdControl as a template and mark the center of both mounting holes. For the distance between the holes, *see "Dimensions", page 8*.
- Drill two ø 5.6 - 6 mm (0.22 - 0.24 in) mounting holes at the marked spots.
- Fasten the AdControl.
- Ensure that the housing is not distorted.

Electrical installation

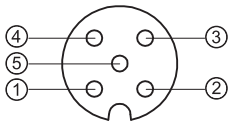
- Connect the control plug with the DriveControl or alternative controller.
- If necessary, set the DIP switches according to requirements (*see "DIP switches", page 9*).
- Insert the plug of the RollerDrive so that with the the "RD" labeling can be read and the "EC310" labeling is to the rear, i.e. cannot be read.

Inputs and outputs



RollerDrive connection: 8 mm snap-in, 5-pin, pin location in accordance with DIN EN 61076-2

① +24 V DC
② Output for direction of rotation
③ Ground
④ Input error signal
⑤ Output speed signal



Controller connection

① +24 V DC
② Input direction of rotation
③ Ground
④ Output error signal
⑤ Input speed signal

The electrical data for each connection is specified in the appendix (*see "Electrical data of connectors", page 22*).

Initial startup and operation

Initial startup

Checks before initial startup

- Ensure that the AdControl has been correctly fastened to the profile and that all screws have been correctly tightened.
- Ensure that there are no additional areas of danger caused by interfaces to other components.
- Ensure that the wiring is in accordance with the specification and legal directives.
- Check all protection devices.
- Ensure that no bystanders are in dangerous areas around the conveyor.

Checks before every startup

- Check the AdControl for visible damage.
- Check the DIP switch settings (*see "DIP switches", page 9*).
- Check all protection devices.
- Clearly specify and monitor the way goods are placed on the conveyor.
- Ensure that the RollerDrive is not blocked.
- Ensure that no bystanders are in dangerous areas around the conveyor.

Operation

⚠ CAUTION

Accidental start-up of the RollerDrive
Danger of crushing of limbs and damage to goods

- Ensure that no unauthorized persons are near the conveyor before switching on the operating voltage.

Ambient conditions during operation *see "Technical data", page 8*

The AdControl starts transmitting the signals as soon as the voltage is switched on.

Maintenance and cleaning

Warning notices concerning maintenance and cleaning

⚠ CAUTION

Risk of injuries due to incorrect handling

- ➢ Maintenance work and cleaning must only be performed by qualified and authorized persons.
- ➢ Perform maintenance work only after switching off the power. Ensure that the system cannot be switched on accidentally.
- ➢ Set up signs indicating that maintenance work is in progress.

Maintenance

Inspecting the AdControl

The AdControl itself is maintenance-free. For avoidance of faults however, regular inspection of the connections and fixings is recommended.

- ➢ As part of the regular control and maintenance work on the conveyor, ensure that the screws of the AdControl are still tight and that the cables are still laid properly and connected to the terminals.

Replacing the AdControl

If a AdControl is damaged, it has to be replaced.

- ➢ Install a new AdControl (*see "Abandonment", page 21* and *see "Installing the AdControl in a conveyor system", page 17*).

Cleaning

Dust and dirt in combination with humidity may bridge the electric circuit. Therefore, in a dirty environment, periodic cleaning will help to avoid short-circuits which could damage the AdControl.

⚠ CAUTION

Risk of damage to the AdControl due to incorrect cleaning

- ➢ Do not immerse the AdControl in liquids.
- ➢ Do not use cleaning agents.

- ➢ Clean away dust and soiling if necessary.
- ➢ For more thorough cleaning, disconnect the AdControl from the power supply, remove (*see "Abandonment", page 21*), and wipe over with a damp cloth.

Troubleshooting

Troubleshooting

Symptom	Possible cause	Help
AdControl is not working or is working incorrectly	No power supply	➢ Check whether the output voltage of the power supply is within the specified voltage range. ➢ Check the connections and correct if necessary.
RollerDrive is rotating at the wrong speed.	Wrong position of the DIP switches	➢ Check and if necessary correct the position of the DIP switches (*see "DIP switches", page 9*).
AdControl faulty or damaged		➢ Replace the AdControl.
Maximum speed not reached.	Improper gear reduction of the RollerDrive EC310.	➢ Use the RollerDrive EC310 with the appropriate gear reduction.

The error signal is active in the event of the following faults:
- RollerDrive error
- RollerDrive not connected properly
- Upper and lower levels of permitted operating voltage transgressed
- Operating voltage has reverse polarity
- Chopper resistor overheating

Abandonment and disposal

Abandonment

⚠ CAUTION

Risk of injury due to improper handling

- ➢ Abandonment may only be executed by qualified and authorized persons.
- ➢ Only abandon the AdControl after switching off the power. Ensure that the AdControl cannot be turned on accidentally.

- ➢ Disconnect all cables from the AdControl.
- ➢ Unscrew the screws attaching the AdControl to the conveyor frame.
- ➢ Extract the AdControl from the conveyor frame.

Disposal

The operator is responsible for the proper disposal of the AdControl. In doing so, industry-specific and local provisions must be observed for the disposal of the AdControl and its packaging.

Appendix

Replacing a RollerDrive EC200

The RollerDrive EC310 can also replace a RollerDrive EC200. In such a case, speed variations may occur. To approximately achieve the desired speeds, different DIP switch settings are required than those used for the replacement of the RollerDrive EC300.

Gear ratio		DIP switches					Nominal torque [Nm]		Max. torque [Nm]		Max. speed [m/s]		Speed difference
EC200	EC310	Bit 3	Bit 2	Bit 1	Bit 0	7.85:1/ 13:1	EC200	EC310	EC200	EC310	EC200	EC310	
12:1	16:1	OFF	OFF	ON	OFF	ON	0.70	0.81	1.20	1.95	0.98	0.92	-7 %
16:1	20:1	OFF	OFF	ON	OFF	ON	0.90	1.01	1.80	2.44	0.74	0.73	-1%
36:1	48:1	OFF	OFF	ON	OFF	ON	1.70	2.42	3.60	5.85	0.33	0.31	-7 %
36:1E	20:1	OFF	OFF	OFF	OFF	OFF	1.30	1.01	2.60	2.44	0.44	0.4	-8%
48:1	64:1	OFF	OFF	ON	OFF	ON	2.30	3.23	5.40	7.80	0.25	0.23	-7 %
64:1	96:1	OFF	OFF	ON	OFF	ON	3.60	4.84	8.00	11.69	0.18	0.15	-17%

Electrical data of connectors

RollerDrive connector

Power supply (pin 1, 3)

Nominal value	24 V DC	
Voltage range	18 to 26 V DC	
Remaining ripple	max. 600 mV_{pp}	
Rated current	0 to 2.3 A	
Peak current	max. 5 A	max. 250 ms > 2.3 A, time-dependent current flow triangular, duty factor ≤ 19 %
Return electric strength	max. 35 V DC	Without harmonic waves max. 500 ms; after 500 ms the reserve voltage must be ≤ 27 V, duty factor max. 27 %

Direction of rotation output (pin 2)

Properties	not electrically isolated, short circuit-proof, infeed of external voltage not permitted	
Overvoltage protection	max. 30 V DC	
Anticlockwise direction of rotation	max. 4 V	logical 0
Output current low	max. 1 mA	load resistance = 57kΩ
Clockwise direction of rotation	min. 7 V	logical 1
Output current high	max. 0.2 mA	with short circuit

Input error (pin 4)

Properties	not electrically isolated	
Reverse polarity protection	max. 30 V DC	
Max. voltage	30 V DC	
Logic level low	max. 8.5 V DC	@ 1.5 mA logical 0 = inactive = no error
Input current low	1.5 mA max. 5 mA	
Logic level high	12 to 30 V DC	logical 1 = active = error
Input current high	max. 0.01 mA	

Speed output (pin 5)

Properties	not electrically isolated	
Speed operating range of motor control voltage	2.3 up to 10 V DC	RollerDrive rotates
Stop range	0 to 2 V DC	RollerDrive does not rotate
Precision of motor control voltage	5 %	Motor control voltage between2.3 and 10 V DC at 21 °C
Motor control voltage ripple	250 mV_{pp}	50 Ω
Max. load of motor control current	0.16 to 2 mA	Input resistance of RollerDrive: 66kΩ
Modification speed	4.5 to 5 V/ms	0 - 100 % motor control voltage

Controller connection

Cable 100 mm long with 5-pole M12 connector, matching socket of the Interroll DriveControl 200/300.

Power supply (pin 1, 3)

Rated voltage	24 V DC	
Voltage range	19 to 26 V DC	
Remaining ripple	max. 200 mV_{pp}	
Overvoltage resistance	max. 35 V DC	Without harmonic waves max. 500 ms
Rated current consumption, without motor	0.5 A	at 24 V
Rated current consumption, with motor	3 A	at 24 V
Max current consumption, with motor	5 A	at 24 V max. 500 ms

Direction of rotation input (pin 2)

Properties	not electrically isolated	
Reverse polarity protection	Yes	max. -30 V DC
Maximum voltage	30 V DC	
Logic level low	max. 0.8 V DC	Anticlockwise direction of rotation
Logic level high	min. 2.4 V DC	Clockwise direction of rotation
Input resistance	5.6 kΩ	

Error output (pin 4)

Properties	not galvanically separated, open collector	
Max. voltage	30 V DC	
Series resistance	5.6 kΩ	external load resistance required in accordance with VCC
Max collector current	5 mA	
Max. output voltage	8.9 V DC	@ I_C = 1.5 mA
Logic	Transistor conducting = OK Transistor not conducting = error	

Input speed (pin 5)

Properties	not electrically isolated	
Reverse polarity protection	Yes	max. -30 V DC
Max. voltage	30 V DC	for max. 5 s
Total control range	0 to 10 V DC	
Control range conveying operation EC3007.85:1	2.0 to8.6 V DC	2.0 V =0.0 m/s 8.6 V =2.0 m/s
Control range conveying operation EC300 13:1	2.0 to6.0 V DC	2.0 V =0.0 m/s 6.0 V =1.21 m/s
Stop range	0 to 2.0 V DC	RollerDrive does not rotate
Resolution A/D conversion	8 bit	
Input resistance	66 kΩ	
Time constants	4.5 to5.0 ms	

Installation declaration

in accordance with the EC Machinery Directive 2006/42/EC, Appendix II B,

the manufacturer:

Interroll Engineering GmbH
Hoeferhof 16
D - 42929 Wermelskirchen
Germany

hereby declares with sole responsibility that the product range

- AdControl

is not a ready-to-use machine as defined by the EC Machinery Directive and, therefore, does not fully comply with the requirements of this directive. The commissioning of these conveyor modules is not permitted unless conformity of the entire machine/system in which they are installed has been declared in compliance with the EC Machinery Directive.

The health and safety requirements as stated in Appendix I have been applied. The special technical documents mentioned in Appendix VII B have been prepared and will be sent to the responsible authority if necessary.

Person authorized to prepare the technical documents: Georg Malina, Interroll Engineering GmbH, Hoeferhof 16, D - 42929 Wermelskirchen

Applied EC Directives:
- Machinery Directive 2006/42/EC
- EMC Directive 2004/108/EC
- RoHS Directive 2002/95/EC

Applied harmonized standards:
- EN ISO 12100 Parts 1 and 2 "Safety of machinery - Basic concepts, general principles for design" - Part 1: "Basic terminology, methodology" - Part 2: "Technical principles"

Wermelskirchen, 1 June 2012

Armin Lindholm

(Managing Director)

(This declaration can be obtained at www.interroll.com, if needed.)

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